

REMARKS

This is a full and timely response to the non-final Office action mailed May 18, 2006. Reexamination and reconsideration in view of the foregoing amendments and following remarks is respectfully solicited.

Claims 1-43 are pending in this application, with Claims 1, 18, 36, and 40 being the independent claims. Claims 1-35 have been withdrawn. No new matter is believed to have been added.

Rejections Under 35 U.S.C. § 102/103

The Office Action states that claim 36 is rejected under 35 U.S.C. § 102 as allegedly being anticipated over U.S. Pat. Appn. No. 2003/0171239 to Patel et al. ("Patel"). In the alternative, the Examiner alleges that Patel renders claim 36 unpatentable under 35 U.S.C. § 103. The Applicant respectfully disagrees.

Independent claim 36 recites the step of, *inter alia*, applying a post-CMP wetting composition to the wafer, wherein the post-CMP wetting composition comprises a non-ionic surfactant having an HLB value in the range from 1 to 15, in an amount of between about .005-10% weight of the composition.

In contrast, Patel does not teach a non-ionic surfactant having an HLB value in the range from 1 to 15. Although Patel generally mentions "nonionic surfactants" in its specification, there is no mention of nonionic surfactants having an HLB value in the range from 1 to 15. In fact, Patel seems to teach away from surfactants having these characteristics. Specifically, Patel identifies poly(vinyl alcohol) and poly(ethyleneimine) as being the "preferred" surfactants, *see par. [0047]*; however, these surfactants do not have either polyoxyethylene (POE) or polyoxypropylene (POP) components, which, as known by those skilled in the art, are required for measuring HLB values.

Thus, as Patel and the Applicant's invention are not concerned with the same issues, and the fact that Patel fails to disclose, either explicitly or inherently, at least the above-noted element of claim 36, reconsideration and withdrawal of the §102 and §103 rejections are therefore solicited.

Claim 40 is rejected under 35 U.S.C. § 102 as allegedly being unpatentable over

Patel. The Applicants traverse this rejection.

Claim 40 relates to a method for processing a wafer and includes the step of, *inter alia*, applying a CMP wetting composition to the wafer, wherein the CMP wetting composition comprises a corrosion inhibiting agent and a pH adjuster, wherein the composition has a pH that is ± 1 pH unit of the pH of the slurry and an ionic strength of between about 10^{-2} and 10^{-5} mol/dm³.

Patel does not teach applying a CMP wetting composition that has a pH that is ± 1 pH unit of the pH of the slurry and an ionic strength of between about 10^{-2} and 10^{-5} mol/dm³. Instead, Patel only teaches anionic surfactants, which the Examiner relies on as an indication of ionic strength. The Examiner's reliance is unfounded.

It is well known by those with skill in the art that ionic strength is the sum of a concentration of ions, and the formula for calculating ionic strength is

$$I = \frac{1}{2} \sum_{i=1}^n m_i z_i^2$$

where, m_i is the molar concentration of the i^{th} species and z_i is the charge of the i^{th} species.

Ions are solvated, charged, free species, which may bind to other species through polar or ionic interactions only. In contrast, ionic or anionic surfactants have charges that are created on covalently bound species. Thus, as the charges created on surfactants are bound species and not ions, it follows that surfactant concentration is not an indication of ionic strength.

The Examiner further alleges that Patel teaches pH adjusting, which indicates pH. However, simply because Patel mentions adjusting pH does not mean that there is a disclosure or suggestion of adjusting a pH so that it is ± 1 pH unit of the pH of the slurry. First, Patel does not even refer to or suggest the use of a slurry. Secondly, the Examiner's allegation that "products of identical composition cannot have mutually exclusive properties" does not apply here, as the Patel and Applicant compositions are not identical compositions. Patel only mentions adding acids and/or bases to adjust the pH to an acceptable value, *see par.* [0050], however, there is no suggestion that an "acceptable value" means a pH that is ± 1 pH unit of the pH of the slurry. Those with skill in the art recognize that two compositions including similar constituents but

different pH values may not react similarly when disposed in the same environments.

Accordingly, as Patel fails to disclose, either explicitly or inherently, at least the above-noted element of claim 40, reconsideration and withdrawal of the §103 rejection is therefore solicited.

Rejections Under 35 U.S.C. § 103

Claims 37 and 39 are rejected under 35 U.S.C. § 103 as allegedly being unpatentable over Patel in view of "Comparing the effectiveness of knobby and ridged post-CMP cleaning brushes", Micron Technology, July 1999, Micromagazine by Cooper et al. ("Cooper"). This rejection is respectfully traversed.

Claims 37 and 39 depend from claim 36 and therefore rely on the arguments presented above with regard to Patel. Moreover, Cooper does not make up for the deficiencies of Patel. Although Cooper teaches using different brush designs in a CMP process, nowhere is there disclosure of a nonionic surfactant having an HLB value in the range from 1 to 15, as recited in claim 36. Accordingly, as Patel and Cooper fail to disclose, either explicitly or inherently, at least the above-noted element of claim 36, hence, claims 37 and 39, reconsideration and withdrawal of the §103 rejection is therefore solicited.

Claims 41 and 43 are also rejected under 35 U.S.C. § 103 as allegedly being unpatentable over Patel in view of Cooper. Claims 41 and 43 depend from claim 40 and therefore rely on the arguments presented above with regard to Patel. Moreover, Cooper does not make up for the deficiencies of Patel. Although Cooper teaches using different brush designs in CMP, nowhere is there disclosure of applying a CMP wetting composition that has a pH that is ± 1 pH unit of the pH of the slurry and an ionic strength of between about 10^{-2} and 10^{-5} mol/dm³, as recited in claim 40. Accordingly, as Patel and Cooper fail to disclose, either explicitly or inherently, at least the above-noted element of claim 40, and hence, claims 41 and 43, reconsideration and withdrawal of the §103 rejection is therefore solicited.

Claim 38 is rejected under 35 U.S.C. § 103 as allegedly being unpatentable over Patel in view of Cooper further in view of U.S. Pat. No. 5,329,732 to Karlsrud et al. ("Karlsrud"). This rejection is respectfully traversed.

Claim 38 depends from claim 36 and therefore relies on the arguments presented above as they relate to Patel and Cooper. Moreover, Karlsrud does not make up for the deficiencies of Patel and Cooper. Specifically, Karlsrud teaches a wafer polishing apparatus that includes a wafer polishing assembly having a plurality of wafer carriers for substantially simultaneously polishing a plurality of wafers against a rotating polishing surface. See Abstract. However, there is no mention or suggestion whatsoever of using a composition including a nonionic surfactant having an HLB value in the range from 1 to 15, as recited in claim 36. Accordingly, as Patel, Cooper, and Karlsrud fail to disclose, either explicitly or inherently, at least the above-noted element of claim 36, and hence, claim 38, reconsideration and withdrawal of the §103 rejection is therefore solicited.

Claim 42 is rejected under 35 U.S.C. § 103 as allegedly being unpatentable over Patel in view of Cooper further in view of U.S. Pat. No. 5,329,732 to Karlsrud et al. ("Karlsrud"). This rejection is respectfully traversed.

Claim 42 depends from claim 40 and therefore relies on the arguments presented above as they relate to Patel and Cooper. Moreover, Karlsrud does not make up for the deficiencies of Patel and Cooper. Specifically, Karlsrud teaches a wafer polishing apparatus that includes a wafer polishing assembly having a plurality of wafer carriers for substantially simultaneously polishing a plurality of wafers against a rotating polishing surface. See Abstract. However, there is no mention or suggestion whatsoever of applying a CMP wetting composition that has a pH that is ± 1 pH unit of the pH of the slurry and an ionic strength of between about 10^{-2} and 10^{-5} mol/dm³, as recited in claim 40. Accordingly, as Patel, Cooper, and Karlsrud fail to disclose, either explicitly or inherently, at least the above-noted element of claim 40, and hence, claim 42, reconsideration and withdrawal of the §103 rejection is therefore solicited.

Conclusion

Based on the above, independent Claims 36 and 40 are patentable over the citations of record. The dependent claims are also deemed patentable for the reasons given above with respect to the independent claims and because each recite features which are patentable in its own right. Individual consideration of the dependent claims is respectfully solicited.

The other art of record does not disclose or suggest the inventive concept of the present invention as defined by the claims.

Hence, the Applicants submit that the present application is in condition for allowance. Favorable reconsideration and withdrawal of the objections and rejections set forth in the above-noted Office Action, and an early Notice of Allowance are requested.

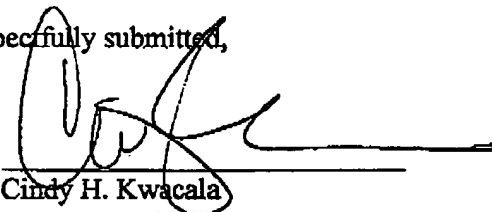
Should the Examiner have any questions or wish to further discuss this application the Examiner is requested to telephone the undersigned attorney at the below-listed number.

If for some reason the Applicants have not paid a sufficient fee for this response, please consider this as authorization to charge Ingrassia, Fisher & Lorenz, Deposit Account No. 50-2091 for any fee which may be due.

Respectfully submitted,

Dated: 8/15/06

By:


Cindy H. Kwacala
Reg. No. 47,667

INGRASSIA FISHER & LORENZ, P.C.
(480) 385-5060

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